Federal Democratic Republic of Ethiopia

EDICT OF GOVERNMENT

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ET 980 (2004) (English): Dextrose monohydrate - Specification

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ETHIOPIAN STANDARD

ES 980:2004

(Reaffirmed: 2012)

First edition

Dextrose monohydrate — Specification

ICS: 67.180.10

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Sugar and Sugar Products (TC 22) and published by the Ethiopian Standards Agency (ESA).

The standard is a reaffirmation for reprint of the Ethiopian Standard ES 980:2004, Dextrose monohydrate-Specification , with some editorial changes without altering the technical contents in the former text.

Dextrose monohydrate — Specification

1 Scope

This Ethiopian Standard specifies the requirements and the methods of sampling and test for dextrose monohydrate.

2 Normative references

The following Ethiopian Standards contain provisions, which through reference to this text; constitute provisions of this Ethiopian Standard. At the time of publication the editions indicated were valid. All standards are subject to revision, and possibility of applying the most recent editions of the Ethiopian Standard indicated below. Registers of currently valid standards are maintained in the Ethiopian Stamdards Agency.

ES 577, *Recommended code of practice – General principles of food hygiene*.

ES 359, *General standard for the labeling of pre-packaged food*.

ES ISO 5377, *Determination of reducing power and dextrose equivalent lane and Eynon constant titre method.*

ES ISO 5809, *Determination of sulphated ash.*

ES ISO 11212-1, *Heavy metals content – Part 1 Determination of arsenic content by atomic absorption spectrometry with electro thermal atomization*.

ES ISO 11212-3, *Heavy metals content part 3 – Determination of lead content by atomic absorption and spectrometry with electro thermal atomization.*

ES: 985, *White sugar- specification*

ES 982, *glucose syrup- Specification*

ES ISO 1741, *Determination of loss on drying.*

3 Definition

For the purpose of this Ethiopian Standard, the following definitions shall apply.

3.1
Dextrous monohydrate
Shall mean a purified and crystallized D-glucose containing one molecule of water of crystallization.

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4 Requirements

4.1 General

4.1.1 The material shall be white to light cream in color and shall either be crystalline or granular odorless powder, readily soluble in water. It shall have a characteristic sweet taste, free from foreign flavor.

4.1.2 The dextrous powder shall be free from dirt, other extraneous matter insect, rodent coloring matter or other contaminants.

4.1.3 Loss on drying – when tested by the method prescribed in ES ISO 1741 the loss on drying shall not be less than 7.5 percent and not more than 9.5 percent by mass.

Table I— Requirements for dextrose monohydrate

No.	Characteristics	Requirements	Test methods
1	D-glucose content, % by mass min.	99.5	ES ISO 5377
2	Total solids content, % by mass min.	90.0	Annex A
3	Sulphated ash % by mass max. on dry basis	0.25	ES ISO 5809
4	Sulphur dioxide mg/kg max.	20	ES 982annex A

Table II Heavy metals requirements

5	Arsenic (As) mg/kg max.	1	ES ISO 11212-1
6	Copper (Cu) mg/kg max.	2	ES 985:Annex G
7	Lead (Pb) mg/kg max.	0.50	ES ISO 11212-3; 2004

4.2 Dextrose monohydrate shall comply with microbiological requirements specified in ES 986 specifications for edible maize starch.

5 Hygiene

5.1 Dextrose monohydrate shall be produced in accordance with ES 577 recommended code of practice general principles of food hygiene.

6 Packing and labeling

6.1 The material shall be packed in dry and leak-proof containers, which would not have any deleterious effect on the quality of the product.

6.2 Labeling

6.2.1 Labeling of dextrous monohydrate shall be done in accordance with ES 359 General standard for labeling prepacked products and shall include the following information.

i) Name of the product;

ii) Name and address of the manufacturer;

iii) Batch or code number;

iv) Date of manufacture;

v) Net mass of the content.

7 Sampling

7.1 In drawing, preparing, storing, and handling samples the following precautions and directions shall be considered

7.1.1 Sampling instrument shall be clean and dry when used.

7.1.2 Precautions shall be taken to draw the samples in a manner so as to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.

7.1.3 The samples shall be placed in clean and dry glass containers.

7.1.4 The sample containers shall be sealed airtight after filling and marked with full details of sampling, date of manufacture, name of the manufacturer and other important particulars of the consignment.

7.1.5 Samples shall be stored in such a manner that the conditions of storage do not unduly affect the quality of the material.

7.2 Scale of sampling

7.2.1 Lot-all the containers in a single consignment of the material drawn from the same batch of manufacturer shall constitute a lot. If a consignment is declared to or is known to consisted of different batches of manufacture, the containers belonging to the same batch shall be grouped together and each group shall constitute a separate lot.

7.2.2 Samples shall be tested from each lot for ascertaining conformity of the material to the requirements of the specification.

7.2.3 The number n of containers to be selected from the lot shall depend on the size of the lot N.

7.2.4 Number of containers to be selected for sampling.

Lot size (N)	Number of containers to be selected (n)
3 to 15	3
16 to 40	4
41 to 65	5
66 to 110	7
Over 110	10

7.2.5 The container shall be selected from the lot at random.

7.3 Test samples and referee samples

7.3.1 Preparation of individual samples

In the case of small containers, empty out the contents of each selected container on a clean surface and mix thoroughly. Cone and quarter as often as necessary till a quantity of the material not less than 500 gram is left. In the case of large containers, drawn with an appropriate sampling instrument small but equal quantities of the material from top, middle and bottom portions of each selected container so as to get a total quantity of the material not less than 500 gram. From this, take about 250 gram of the material and divide into three equal parts. Each part so obtained shall constitute an individual sample representing the container and shall be transferred immediately to

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thoroughly clean and dry containers, sealed air-tight and labelled with the particulars of the sample. The individual samples so obtained shall be divided into three sets in such a way that each set has a sample representing each selected container. One of these sets shall be marked for the manufacturer or supplier, one for laboratory test and the third for referee.

7.3.2 Preparation of composite sample

Out of the material from each selected container remaining after the individual sample has been taken, equal quantities of the material shall be taken and mixed together so as to form a composite sample weighing not less than 600 gram. This composite sample shall be divided into three equal parts and transferred to clean dry containers made of glass and labelled with the particulars of the sample. One of this composite samples shall be for the manufacturer or supplier one for laboratory test and the third for the referee.

7.3.3 Referee sample

Referee sample shall consist of a set of individual samples and composite sample marked for this purpose and shall bear name & signature of the sampler, If possible the seal of the manufacturer. The referee sample shall be kept at the appropriate place.

7.3.4 Number of tests

7.3.4.1Tests for D-glucose content & total solids shall be conducted on each of the samples constituting a set of individual test samples.

7.3.4.2 Tests for sulphated ash, sulphur dioxide, arsenic, copper and lead shall be conducted on the composite samples.

7.4 Criteria for conformity

7.4.1 The lot shall be considered to have satisfied all the requirements specified in ES 980: 2004 section 4.

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Annex A
(normative)

A. Determination of total solids

A.1 Principles

After determination of loss in mass in accordance with ES ISO 1741, the percentage of loss in mass is deducted from 100 to obtain total solids.

A.2 Calculation

Total solids content, percent, by mass = 100 – loss on drying

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Ethiopian Standards Agency

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010.ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1970.

ESA's objectives are:-

- Develop Ethiopian standards and establish a system that enable to check weather goods and services are in compliance with the required standards,
- Facilitate the country's technology transfer through the use of standards,
- Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/ or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.
Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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More Information?
Contact us at the following address.
The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65
📠 011-646 08 80
✉ 2310 Addis Ababa, Ethiopia
E-mail: info@ethiostandards.org,
Website: www.ethiostandards.org

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